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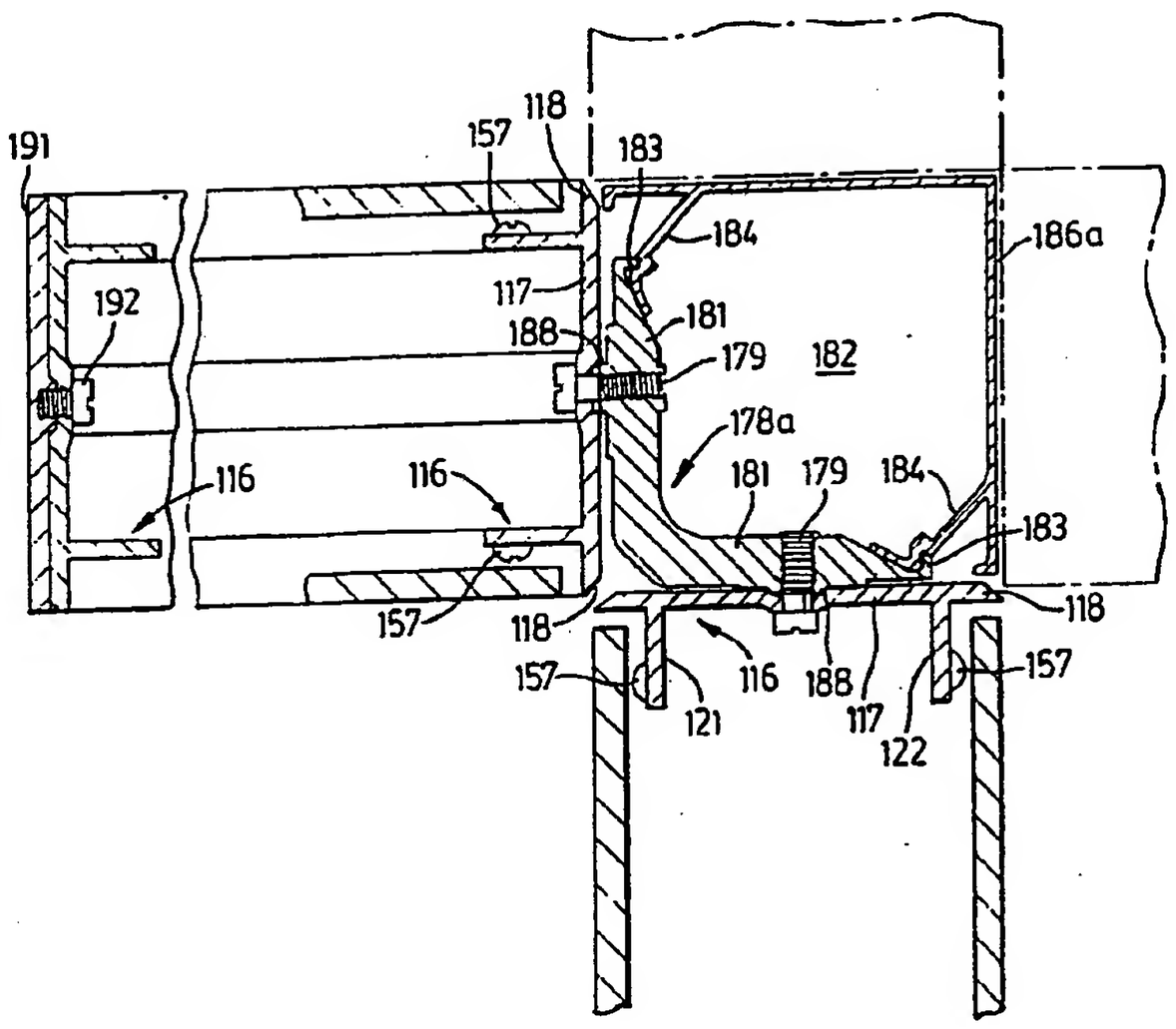
(54) Title: IMPROVEMENTS IN PARTITION STRUCTURES AND FRAME ELEMENTS THEREFOR

(57) Abstract

Partition structure has a rigid rectangular frame and rigid rectangular panels received in openings on opposite sides of the frame, with a small clearance between the edges of the panel and the frame. At corners, adjacent frames are connected with extruded connectors (178a) having arms (181) joined adjacent side edges of the side rails (116) of the frames. The arms (181) define a space (182) in the middle of the area of intersection of the side rails (116) projected outwardly so as to leave space through which electrical cables and the like may be run. There are also disclosed frame elements and partition structures arranged for stacking of modular frame elements one on another, for sealing and supporting of glass panels to form windows, for attachment of the upper end of a partition to a ceiling, and for levelling of a frame element on an uneven floor.



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Improvements in Partition Structures and Frame Elements Therefor

The invention relates to partition structures and to elements for use in their construction. More especially, although not exclusively, it relates to partition structures for use in offices.

Known partition structures have employed corner posts to which partition members have been connected at points at which it is desired to form an angle or corner in the structures. Often, however it is desired to run electrical power or telecommunication wiring through the interior of the partition structures. The corner posts obstruct such wiring and limit the freedom of arrangement of the supply of the wiring to and between adjacent partition structures.

In a first aspect of the present invention, there is provided a corner partition structure comprising first and second rectangular frame elements each having at least one side rail engaging releasable connection means, and characterized by a corner connector comprising a short length of an extrusion comprising a plurality of arms disposed at right angles to one another, said arms being joined adjacent side edges of said side rails and defining a space in the middle of the area of intersection of said side rails projected outwardly, each arm extending adjacent a respective side rail and connecting releasably with the connection means. The arms define a space between them through which electrical cables may be run, so that wiring may be passed vertically through the cavity at the corner. This greatly increases the capability of the structure to have wiring arranged through it.

In other aspects of the present invention there are provided frame elements and partition structures particularly adapted to enable convenient and secure stacking of modular frame

elements one on another, connection of capping plates on a top side of the partition, attachment of the upper end of a partition to a ceiling, or levelling of a frame element on an uneven floor. Examples of the above forms of frame elements and partitions in accordance with the invention are described in more detail hereinafter with reference to the accompanying drawings in which:

Figure 1 shows a perspective view of a corner partition structure formed from modular frame elements and facing panels in accordance with the invention;

Figure 2 is a partially fragmentary perspective view of one form of rectangular frame element used in the structure of Figure 1;

Figure 3 is a partially fragmentary cross-section through a frame element as in Figure 2 employed in forming a window in the structure of Figure 1, and taken on the line 3-3 in Figure 1;

Figure 4 shows one form of an interconnector member for interconnecting modular frame elements one on top of another;

Figure 5 shows the interconnector member of Figure 4 in use and is taken in vertical cross-section on the line 5-5 in Figure 1;

Figure 6 is a partial vertical cross-section through a lower horizontal rail of a partition structure taken along the line 6-6 in Figure 1;

Figure 7 is a horizontal section taken on the line 7-7 in Figure 1, showing a corner connector and a snap-on extruded cover;

Figure 8 is a horizontal cross-section of a modified snap-on cover;

Figure 9 shows a horizontal cross-section through a corner forming a T-joint;

Figure 10 shows a horizontal cross-section through a corner forming a cruciform joint; and

Figure 11 is a partially fragmentary perspective view from below of an upper quadrant of a frame element in the area circled at 11 in Figure 1, showing arrangements for connection of the partition structure to a ceiling.

Referring to the drawings, Figure 1 shows an angled or corner unit consisting of two sections 111 and 112 joining at a right angle. Each section consists of two sub-sections, 111a and b and 112a and b.

The sub-sections are made up of assemblies of rigid modular rectangular frame elements on which facing panels, plates, capping plates and like finishing elements are connected. Some of these frame elements are intended for positioning at upper levels. Others are intended for positioning in contact with the floor or other supporting surface and are base units having provision for attachment of a baseboard plate 113. Figure 2 shows a base unit 114 which constitutes the structural support of, for example, the partition sub-section 112b.

The element 114 comprises two continuous side rails 116 part of one of which is shown cut away in Figure 2, to illustrate the section of the rail. The cross-section is also seen in each of Figures 7 and 9 to 11, and consists of a plate 117 with edges 118 which are preferably bevelled as seen in Figs. 7, 9 and 10, a narrow central rectangular groove 119, and spaced rearwardly directed flanges 121 and 122.

Desirably the rails 114 and all other continuous rails employed in and together with the frame elements are formed by extrusion. Preferably they are aluminum extrusions, but it will be appreciated that other metals or high-strength plastics materials may also be employed.

The element 114 has an upper continuous rail 123, the cross-section of which is best seen in Figure 3. It is in the form of a generally rectangular box section 124 formed with a channel section recess 126 in its outer side. Each wall of the recess 126 connects through a transition section 127 to an outwardly directed edge flange 128 having a bevelled end edge 128a. There is an inwardly directed rib 129 aligned with each outer side 131 of the box section 124. The ribs 129 and outer sides 131 together define inwardly-directed lips on which panels can be connected in a manner to be described in more detail later.

A continuous bottom rail 132 of the element 114, as best seen in cross-section in Figure 6, is of generally I-shape, and offers a channel facing each side of the element 114. It has a vertical web 133. Figure 6 shows the beam 132 housing a levelling arrangement. The beam 132 is formed integrally with a box section 134 and 136 at its upper and its lower ends. At points where the levelling means are to be disposed, openings 137 are formed through the inner and outer sides of each of the box sections 134 and 136 and in the central web 133 of the I-beam. The lower box section 136 is formed with parallel ribs 138 non-rotatably capturing a flat sided nut 139. The lower side of the box section 136 projects horizontally inwardly to support the nut 139. The nut 139 has a threaded opening in which is threaded a stud 141 with a threaded shank 142 and a head 143 with a slot 144 having planar vertical surfaces so that the head 143 can be rotated to raise or lower the stud 141 relative to the beam 132, and thus extend or retract the lower end of the stud to effect levelling. Normally the head 143 of the stud 141 is

housed within, or below the upper side of, the box section 134 so that it does not interfere with cables or wiring running within the frame element.

It will be noted that the upper outer side of the I-beam 132 is formed with an inwardly directed flange 146 terminating in an end flange 147 parallel to the side 148 of the upper box section 134. The recess provided by the flanges 146 and 147 provides a slot which can receive a hook-shaped plate for attachment of a facing panel in the manner to be described below.

Figure 6 also shows the extruded resilient baseboard cover plates 113 provided with rearwardly inwardly directed flanges 151 having groove formations for snap coupling between inwardly directed flanges 152 formed on the lower and upper side regions of box sections 134 and 136, respectively.

The element 114 is provided with a hollow central cross beam 153, which as best seen in Figure 3 is of a unitary cross-section corresponding approximately to that obtained by placing together two of the extrusions 123 in inverted relationship. On each side, therefore, it has flanges 154 which are twice the thickness of the flanges 128, and the central portion of the beam 153 is of a narrow waisted configuration, defined by re-entrant transition sections 127a, which define recesses adjacent the upper and lower sides of each flange 154. Each flange terminates in a double-bevelled end portion 128b provided with a central groove 155 on its outer end, so that the upper portion of the end 128b, the sides of the rails 116 and the edges of the flanges 128a of the rail 123 define a rectangular framing line. The inner end of the box section 124 of the rail 123, and the corresponding portion of the beam 153 may be formed with square section recesses 156 onto which may be snap coupled resiliently deflectable wings of extruded

plastic cable carriers.

In assembling the frame element 114, the ends of the cross rails or beams 123, 132 and 153 are butted to the inner sides of the side rails 116, between the flanges 121 and 122, and the sides of such cross beams or rails which fit snugly between the flanges 121 and 122 are secured with fasteners 157 such as self-tapping screws or rivets passed through holes in the flanges 121 and 122. Preferably, as seen in Figure 2, the flanges 154 of the hollow cross-beam 153 are notched at each end to receive the flanges 121 and 122. At the upper end of each side rail 114, the flanges 121 and 122 are notched so that the flanges 128 of the rail 114 run out to the side of the frame element. The upper end of each plate 117 is notched to provide a recess or recesses, for example as shown at 158 in Fig. 2, so that electrical cables may be run into the frame element from the exterior.

The side rails 116 are also formed with cut outs, such as, for example, the cut outs 159, through which cables or other service conduits can be introduced into or run through the interior of the element 114.

It will be noted that the side rails 116 are of the same width as the flanges 128 on the rail 114 and the flanges 154 on the cross beam 153, so that on each side of the element, the edges of the flanges 128 and 154 are coplanar with the edges of the rails 116 and form a thin peripheral frame or border around the rectangular opening 114a defined in the upper part of the element 114 and around at least three sides of the lower opening 114b.

In use, facing panels such as panels 161 may be attached to the frame element 114 to enclose the open sides of the element and provide a partition structure in the form of a rectangular box-like housing. In the preferred form, a

standard size of panel 161 is employed to cover both the upper and the lower openings 114a and 114b. The panel 161 fits closely into the upper opening 114a, leaving a small clearance between its edges and the edges of the flanges 128 and 154 and side rails 116.

As noted above, sub-section 112b shown in Figure 1 may be formed by a base frame element 114 together with panels 161 and plate 113. For ease of reference, the element 114 may be referred to as a "two high base unit" since each side may be clad with two of the panels 161 and the plate 113. To form a higher unit, such as sub-section 112a, a rigid rectangular frame element may be stacked on top of a base element 114. Such frame element is preferably dimensioned so that it can be clad with a single standard-sized panel 161 on each side, and is therefore conveniently referred to as a "one high unit". The frame element of such one high unit comprises side rails similar to the side rails 116 in Figure 2, and upper and lower channel section rails joined thereto and formed of the same extrusion as the rail 123, these rails being disposed in inverted relationship to one another.

Still taller units, such as the sub-sections 111a and 111b can be formed by stacking a further one high unit on a partition structure such as that of sub-section 112a. Alternatively, a "three high base unit" may be provided of similar construction to the elements described above but dimensioned so that it may be clad on each side with three of the standard panels 161 and a plate 113. It consists of side rails 116, a bottom rail 132, first and second hollow cross beams similar to the beam 153 and spaced at intervals corresponding to the spacings of the beam 153 and rail 132 as seen in Figure 2, and, as the uppermost horizontal member, a rail similar to rail 123. A one high unit may then be stacked on the three high base unit to form the units 111a and 111b. Other arrangements are possible such

as "two high unit" stacked on a two high base unit.

The panels 161 are held onto such frame elements by a secure tamper-resistant catch mechanism illustrated in Figure 3. Adjacent each side of the lower edge of the panel a small rectangular plate 162 for example of extruded aluminum or plastic, is attached as by an adhesive or with mechanical fasteners, and has a rearward flange forming a hooklike projection 163. When the panel is to be applied on a cross beam 153, the projection 163 may be hooked on an upper lip flange 164 on the flanges 154. When attached to lower I-beam 132, the projection may be hooked on the flange 147. When hooked on a one high unit, the projection may be hooked on the flange 129 of a lower rail of the unit similar to the rail 123.

The lower edge of each panel 161 is thus prevented from being pulled away from the element 114 by a direct outward pull on the edge of the panel, but is free to pivot or rock about the projection 163 or the flange to which the projection is attached.

Adjacent each side of the upper edge of the panel 161 a piece of a generally L-section resilient, preferably plastics material, extrusion 165 is fastened or adhered. Alternatively as shown in Figure 3, left hand side a similar extrusion 165a may be located within a rectangular channel section keyway 166 with re-entrant lips, secured with adhesive or fasteners. A generally U-shape tongue 167 extends rearwardly and is formed on its outer side with a rectangular channel 168 forming two opposing shoulders of width to snugly receive the edge of the flange 129 in the case in which the upper edge of the panel is applied to a rail 123, or the edge of a lower lip flange 164a on the flange 154 of the beam 153.

In each case, the tongue 167 resiliently engages the

shoulders of its flange 129 or 164a when the upper end of the panel 161 is pressed home. The panel edge is thereby securely held against disengagement from the frame element when an outward pull is applied to the edge. As noted above, the panels 161 are held on their respective frame elements with only a small clearance between their edges and the adjacent frame sides, and the free ends of the tongues 167 are practically indiscernible unless the edges of the panels are very closely inspected.

In order to free the panel from its mounted position, a thin-bladed tool such as a putty knife may be inserted through the clearance adjacent the panel edge in order to apply inward pressure on the tongue 167, deflecting it resiliently inwardly, so that the channel 168 is freed from the edge of the slot. The panel edge can then be rocked outwardly about the pivoted connection provided by the hook 163 allowing access to electrical equipment within the partition or if desired the panel can be lifted to free the hook 163 from its engagement, thus allowing the panel to be removed and replaced.

A resiliently compressible sealing or gasketing strip 171, for example of resilient plastic foam, is preferably applied, for example using its own tacky adhesive coating, on the inner sides of the extrusions 165 and 162, in positions such that the strips 171 will be compressed against the outer sides of the rails 123 and beams 132 or 153 in the closed positions of the panels 161. If made continuous along the width of the panels 161, the strip 171 may seal the horizontal gap between the panel 453 and the horizontal rails or beams of the frame element. The strip 171 biases the panel 161 outwardly, thus preventing any tendency for the panel 161 to rattle in its mounted position.

Referring to Figures 4 and 5, these show an arrangement for

connecting a frame element having a rail 123 along one side, such as a one high unit as described above or the like, on a frame element having an upper rail 123, such as a two high base unit as shown in Figure 2, or the like one high or three high unit as described above. A rectangular section block 172 has a threaded bore 173 therethrough. At the points at which interconnections are to be made, openings 174 are drilled or otherwise formed through the inner wall of the box-section 124 and through the bottom of the channel 126. A block 172 is placed at each point and a bolt 176 threaded upwardly into the lower end of the bore 173 and tightened up with a tool introduced through the lower opening 174, so that the head of the bolt engages the underside of the channel bottom. The upper frame element can then be applied and a similar bolt 176 introduced and tightened through the upper opening 174.

In assembling a partition structure such as shown in Figure 1, vertically adjacent frame elements such as the units 114 are preferably held together using connector members such as shown in Figures 4 and 5. Horizontally adjacent frame elements are preferably held together with simple mechanical fasteners such as nuts and bolts passed through holes drilled through the side rails 116 of adjacent elements.

Where it is desired to form an angle between two horizontally adjacent elements, for example as shown in Figures 1 and 7, connector elements such as shown in Figs. 7, 9 and 10 are used. The connectors 178a, 178b and 178c shown are formed from short lengths severed from extrusions. They are connected to the side rails 116 of the frame elements with screws 179 passed through holes drilled through the side rails 116 and through the connectors 178a to c. Such lengths of connector 178a to c are connected to the outer sides of the side rails 116 at vertical intervals, for example of about 200 cm., in order to provide an adequately rigid and strong corner connection. The

connectors 178a to c comprise arms connected together at right angles and connectors 178a to c have arms 181 which join together adjacent the side edges of the side rails 116. They therefore leave open a relatively large space 182 within the rectangular area defined by the intersection of the side rails 116 projected outwardly, so that wiring can be passed freely upwardly along the outer sides of the side rails 116. The space 182 can accommodate cables or electrical connectors of larger cross-section than is possible with the known arrangements.

Figures 7, 9 and 10 show connectors 178a to c of angle section, U-section and square-section, respectively, for forming corresponding corner structures or T-section or cruciform section corner arrangements.

The connectors 178a to c have the outer edge of each arm 181 having a free end is formed with a snap coupling formation, in this instance a re-entrant rib 183, which can more securely snap couple with corresponding grooves formed on rearwardly directed wings 184 formed on extruded resilient covers 186a, b and c shown in Figures 7, 8 and 9. Lengths of such covers 186a to c, which may be of, for example thin extruded aluminum or resilient plastic, are applied to the outer sides of the frame elements at the corner to conceal the outer sides of the side rails 116, corner connectors 178a to c, and any vertically extending wiring. Figures 7 and 8 show right-angle section and convexly arcuate section covers 186a and b which may be applied at a right angled corner according to design requirements or preference.

The connection portions or arms 181 are formed with rectangular projections 188 which locate in the central rectangular grooves 119 in the outer sides of the side rails 116 so that the connectors 178a, b and c are retained against lateral movement relative to the rails 116.

As seen in Figures 1 and 7, the outer ends of the partition structures may be capped with a vertical finishing plate 191 preferably an aluminum extrusion of the cross-section shown, which is screwed to the outer side of the side rail 116, with screws 192 passed through openings drilled at intervals through the central portion of the rail 116.

As shown in Figure 3, an extruded capping plate 201 comprises a flat plate 202 formed with two parallel walls 203 on its under side. Each wall has an inwardly directed edge flange 204 parallel to the plate 202. Co-extruded plastic connectors 206 are used to connect the plate 201 to the upper side of the rail 123. The co-extrusion 206 is mainly of a hard rigid plastic forming two spaced walls 207 connected by a yoke 208. In the upper end of the outer side of each wall 207 a groove is formed which receives a respective edge flange 204. Co-extruded on the outer sides of the lower portions of the walls 207 are upwardly and outwardly directed fins 209 formed from a soft resiliently flexible plastic.

In use, short lengths, e.g. of 3 cm, are severed from the co-extrusion 206 and are slid along the plate 202 with the grooves engaging the flanges 204 to be spaced at intervals, e.g. of 100 cm., along the length of the plate 202. The plate 202 together with the connectors 206 is then pressed downwardly into the channel 126 of the rail 123. The fins 209 are compressed inwardly and flex outwardly to resist withdrawal. The sides of the channel 126 may be finely serrated, as seen in Figure 3, to improve the frictional grip of the fins 209.

Figures 3 and 10 show preferred arrangements for connection of glass panels 211 on an opening of a frame element 123, whereby windows may be provided. As described with reference to Figure 3 above, a length of a keyway extrusion 166 is connected along the upper edge of the glass panel

211, and a length of a hooked extrusion 163 along the lower edge.

The extrusions 163 and 166 may be adhered to the inner side of the glass with glue or with double-sided adhesive tape (not shown). U-shaped resilient catches 165a are provided in the keyway 166 at intervals so that the panel 211 may be attached to the upper and lower or intermediate rails 123, 132 or 153 in the manner described above with reference to Figure 3.

A gasketing strip 171 is applied along the entire width of upper and lower margins of the rear side of the panel, so that the horizontal gaps between the panel 211 and the cross rails 123, 132 or 153 are sealed.

The vertical gap between the side rails 116 and the panel 211 is sealed with a further gasketing arrangement shown in Figure 10. The gasket employs a co-extruded generally channel shape plastics member 213. The channel bottom and side walls of the member 213 are of relatively hard, stiffly flexible plastic and are spaced so that they grip compressively on the outer sides of the flanges 121 and 122 of the side rail 116. Preferably, the inner side of each wall of the channel 213 is formed with raised ribs 214 which engage the flanges 121 and 122. These ribs 214 may be co-extruded with the channel and are of a softer plastic which tends to deform and to grip with greater friction on outer sides of the flanges 121 and 122.

The outer sides of the walls of the channel 213 each have co-extruded on them a soft, resiliently flexible fin 216 which normally extends outwardly at an acute angle from the side wall. In the closed position, as seen in Fig. 10, the panel 211 compresses the fin 216 inwardly so that this forms a gasket or seal pressing resiliently against the inner face of the panel 211.

As will be appreciated, normally a glass panel 211 is employed on each side of a glazed opening, and the gasketing strips and fins 171 and 216 can be employed to seal the opening in the frame element from the exterior by sealing the edges of each glass panel 211 to the vertical and horizontal rails. The gasketing therefore provides sound proofing and prevents ingress of dust to the interior of the glazed opening.

The rails used in the construction of the frame elements may be black anodized aluminum, or at least the inner sides of the horizontal rails or beams 123, 132 or 154 may be matt black coated or painted, and the channel 213 may be extruded from matt black plastic or may at least be painted or coated matt black on the exterior of the channel bottom, so that a neat matt black interior frame is visible through the glass panels.

Figure 11 shows an arrangement for connecting one upper quadrant of a frame element to a ceiling. Normally, a similar arrangement is used at each end of an upper side of a frame element or at least at each end of a number of horizontally adjacent interconnected frame elements, where it is desired to connect the position structure to a ceiling.

Along the line of the intended position of the top of the partition structure, a ceiling rail consisting of a length of the extrusion 202 as also shown in Figure 3 is attached to the ceiling, for example with fasteners (not shown) passed upwardly through holes drilled through the rail 202 and into the ceiling. A sliding latch plate 217 is introduced into one end of the recess formed by the walls 203 and is supported for horizontal sliding in the recess by the re-entrant edge flanges 204. Adjacent the side rail 116, the frame element is provided with a vertically

slidable latch bar 218. In the example shown the bar 218 is a length of square channel section extrusion. As will be seen from Figure 3, the channel between the walls 203 of the ceiling rail 202 is the same width as the channel recess 126. The bar 218 fits between these channels with a snug sliding clearance and passes through rectangular notches 219 and 221 formed with similar snug sliding clearance in the lower wall of the box-section 124 of the rail 123 and in the channel bottom defining the recess 126.

In use, the partition structure having the notches 219 and 221 therein is assembled usually flat on the floor, and then rocked upwardly to a position underneath the rail 202. The bar 218 is inserted through an opening of the frame element and slid upwards to the upper engaged position shown in Fig. 11 with finger pressure of one hand applied to the lower edge of the bar 218 to maintain it in its upper position. In the upper position, the sides of the bar 218 are received with a small clearance between the sides of the flanges 204 and thus lateral movement of the upper end of the partition relative to the rail 202 is resisted. The finger of the other hand are then used to slide the latch plate 217 along the channel of the rail 202 from the position shown in Figure 17 to a lateral position in which a narrow rectangular section end portion 222 of the plate 217 enters a rectangular section aperture 223 formed in the adjacent side of the bar 218. The portion 222 is a close fit in the aperture 223 and the plate 217 is a sliding fit in the channel of the rail 202 and the reaction between these members further resists lateral movement of the partition relative to the rail 202. Although normally friction between the sides of the aperture 223 in the bar 218 and the portion 222 are sufficient to maintain the parts in the latched position, if desired the security of the connection can be increased by tightening up with finger pressure a screw 224 introduced upwardly into a threaded hole 226 in the plate 217 to engage the rail 202.

To cover the gap between the upper side of the partition and the rail 202, a resiliently compressible bellows-like filler strip 227 is applied between the two members. The strip 227 comprises a horizontally pleated member extruded from resilient plastic. The strip 227 has its width less than the gap to be filled so that the upper and lower webs of the strip 227 are engaged compressively by an edge flange 228 of the rail and the flange 128a of the rail 123, and are retained in place by friction. The upper and lower edges of the filler strip are formed with short edge flanges 229 and 231 which engage the outer edges of the flanges 228 and 128a and limit insertion of the strip 227 as it is pressed inwardly into the gap, so that the strip aligns neatly with the edges of the rails 123 and 202.

CLAIMS

1. A corner partition structure comprising first and second rectangular frame elements each having at least one side rail engaging releasable connection means and characterized by a corner connector comprising a short length of an extrusion comprising a plurality of arms disposed at right angles to one another, said arms being joined adjacent side edges of said side rails and defining a space in the middle of the area of intersection of said side rails projected outwardly, each arm extending adjacent a respective side rail and connecting releasably with the connection means.

2. A partition structure as claimed in claim 1 characterized in that said releasable connection means comprise a threaded connector passed through an aperture in each side rail and having a head engaging the inner side of the side rail and a threaded shank engaging in a threaded recess in an arm of said connector.

3. A partition structure as claimed in claim 1 characterized in that the outer side of each side rail has a recess in which a projection on each arm is snugly received to locate the arm against lateral movement relative to the side rail.

4. A partition structure as claimed in claim 1 including a corner cover plate engaging on said corner connector and concealing the outer faces of the side rails.

5. A partition structure as claimed in claim 1 wherein the free end of each of said arms comprises a snap-coupling formation, and including an extruded cover for attachment on the outer side of said corner structure provided with complementary formations for snap-coupling to said snap-coupling formations.

6. A partition structure having a horizontal capping plate on its top surface, characterized in that the capping plate comprises an extrusion formed with two parallel walls on its underside, each wall having an edge flange parallel to the plate, and the partition structure comprising a rectangular frame having an upper horizontal extruded rail formed with a channel section recess in its upper side, and an extruded rigid plastics material connector comprising a pair of grooves receiving said edge flanges of the capping plate and having parallel outer sides having co-extruded thereon resilient fins extending upwardly and outwardly from each outer side, said fins being inserted within and gripping on the sides of the channel section recess in the upper rail.

7. A partition structure as claimed in claim 6 characterized in that the edge flanges are directed inwardly of the edges of the plate, and the grooves are formed in the upper end of each outer side of the connector.

8. A partition structure as claimed in claim 6 characterized in that the sides of the channel section recess are serrated.

9. A glazed partition structure characterized by a frame element having vertical and horizontal rails defining a rectangular opening, each horizontal rail and each vertical rail having spaced inwardly from each of its side edges a flange directed inwardly toward and parallel to the rectangular opening, a glass panel attached outwardly of said flanges on each side of the opening by attachment means connecting between the panel and the frame element, each panel substantially filling each opening, an extruded stiffly resilient plastics material channel section cover applied on each vertical rail on the inner ends of said flanges, with its channel sides gripping resiliently on the outer sides of the flanges, and a flexibly resilient gasketing fin co-extruded on the outer face of each channel

side of the cover and engaging and being biassed resiliently inwards by the vertical margin of the adjacent glass panel, and a resilient gasketing strip engaged with and resiliently compressed between the flange of each horizontal rail and the horizontal margin of the adjacent glass panel.

10. A partition structure as claimed in claim 9 characterized in that each horizontal rail is of generally box section with a connecting wall between the inner ends of said flanges.

11. A partition structure as claimed in claim 9 characterized in that the channel section cover has raised ribs on the inner side of each channel wall adjacent its upper end, the ribs engaging the outer sides of said flanges on the vertical rail.

12. A connectible frame element for a partition structure characterized by a rectangular frame formed by two opposing side rails and upper and lower horizontal rails at least one of which is of channel section with the opening of the channel facing outwards, a frame interconnector member having opposing flat sides spaced apart to be snugly received within said channel, and having a bore therethrough from its upper to its lower end, the channel rail having an opening in its channel bottom at a point at which a connection is to be made to a similar channel rail of a second frame element when superimposed thereon, releasable connector means passing into said bore and engaging compressively on an inner side of the channel rail, and wherein said frame elements each have an edge flange extending laterally outwardly from the free end of the channel side of each channel rail, the edge flanges of the second frame element seating on the edge flanges of the first-mentioned frame element.

13. A frame element as claimed in claim 12 characterized in

that the bore is threaded and the releasable connector means comprise first and second tensile members each having a shank threaded into a respective end of said bore and an enlarged head engaging an inner side of the channel rail.

14. A base frame element for a partition structure characterized by a rectangular frame formed from opposing side rails, an upper horizontal rail and an extruded lower horizontal rail of generally I-section with a box-section portion on its upper end, the lower rail provided at spaced points with leveller means comprising a threaded opening adjacent the lower side of the rail, a threaded shank engaging the opening and having a free end adjacent the lower side of the rail and a tool engaging head having planar vertically extending tool engaging surfaces disposed with said box-section portion and an opening in the upper side of said box-section portion, whereby a tool can be inserted through said opening in the upper side of the box-section portion to engage and rotate said threaded shank.

15. A frame element as claimed in claim 14 characterized in that said head is slotted for reception of a flat-bladed screw driver.

16. A frame element as claimed in claim 14 characterized in that said I-section is provided with a lower box-section portion on its lower end formed on its inner sides with parallel ribs, and said threaded opening is provided by a flat sided threaded member located in said lower box-section portion with its flat sides non-rotatably engaging the sides of said ribs.

17. A ceiling connectible frame element for a partition structure characterized by a rectangular frame formed by two opposing side rails and upper and lower horizontal rails, and a latch bar supported for vertical sliding movement on the frame between a lower position and an upper position in

which the upper end of the bar extends upwardly above the upper rail of the frame, the latch bar having an opening on one side of its upper end, and a ceiling rail for attachment to the ceiling and supporting a sliding latch for horizontal sliding movement therein between a retracted position and an extended position in which an end of the sliding latch engages in the opening in the latch bar.

18. A frame element as claimed in claim 17 characterized in that the ceiling rail comprises a pair of parallel walls having re-entrant edge flanges between which the sliding latch slides and the upper end of the latch bar is dimensioned to be received snugly between said edge flanges.

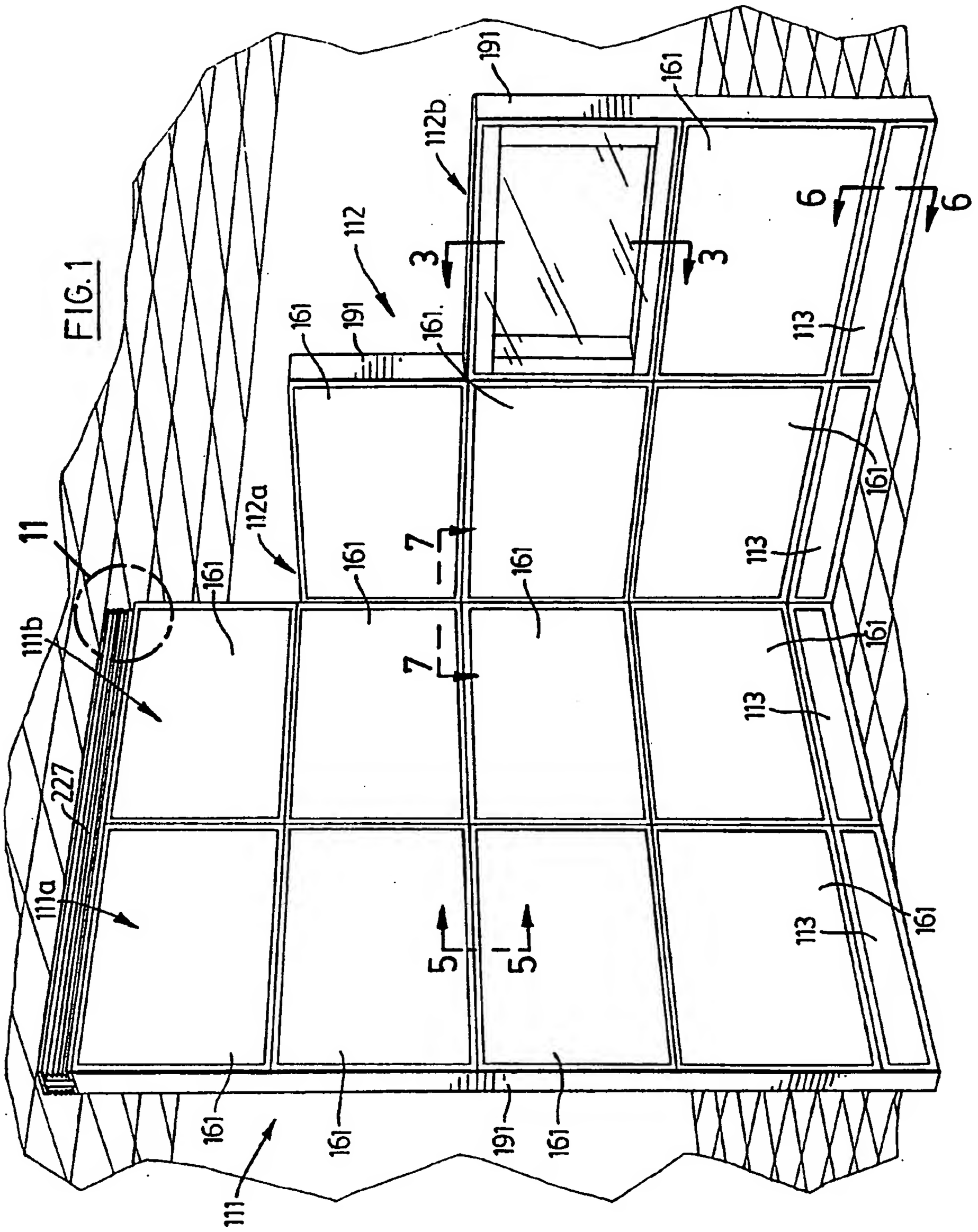
19. A frame element as claimed in claim 17 characterized in that at least the upper rail is a box section extrusion and the latch bar slides with a snug fit in apertures formed in upper and lower sides of the box section.

20. A frame element as claimed in claim 19 characterized in that said apertures are formed in an end of the upper rail adjacent a side rail.

21. A frame element as claimed in claim 19 characterized in that a horizontally pleated resilient plastics filler strip compressed between and frictionally engaging with an edge of the upper side of the upper rail and the adjacent edge of the lower side of the ceiling rail.

22. A frame element as claimed in claim 21 characterized in that the upper and lower edges of the filler strip are formed with short edge flanges engaging on outer sides of the upper rail and ceiling rail, respectively.

FIG.1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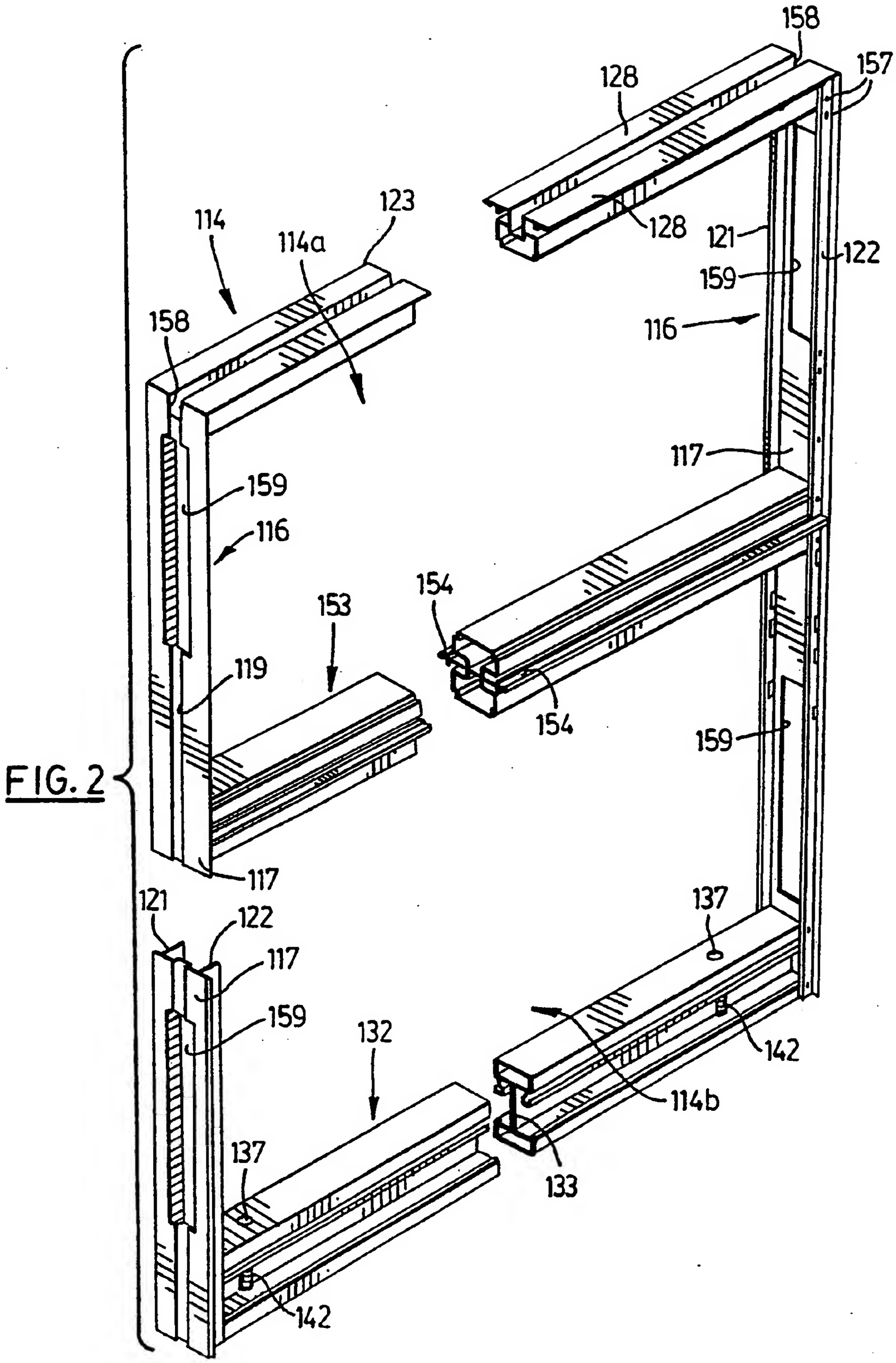
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FIG. 2

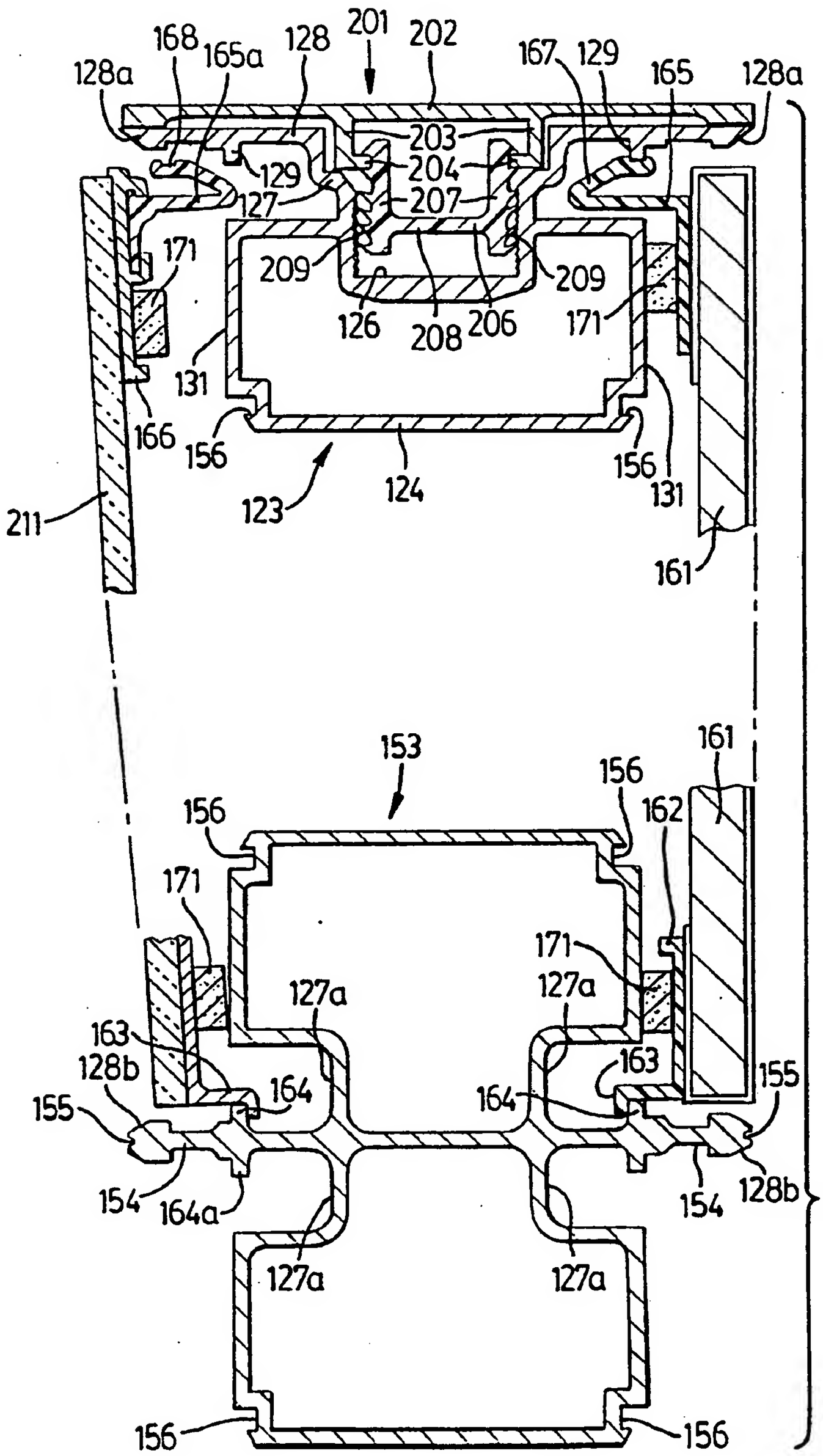
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FIG. 3

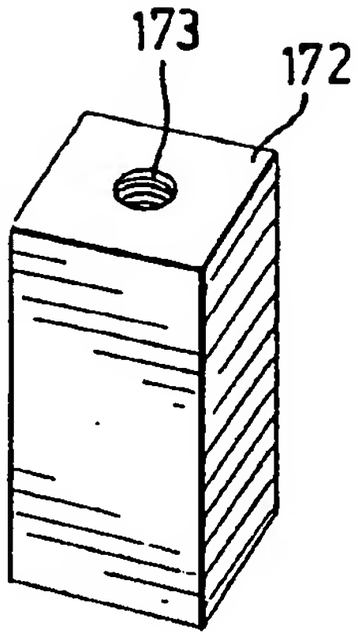

FIG. 4

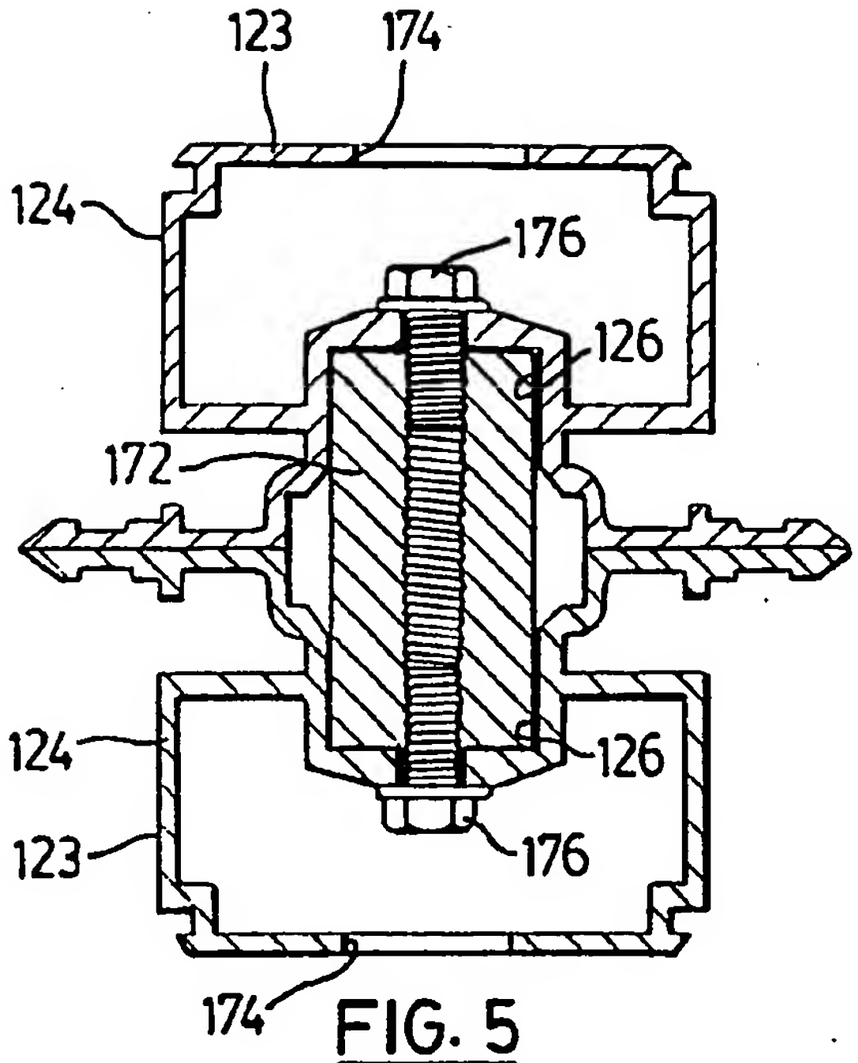

FIG. 5

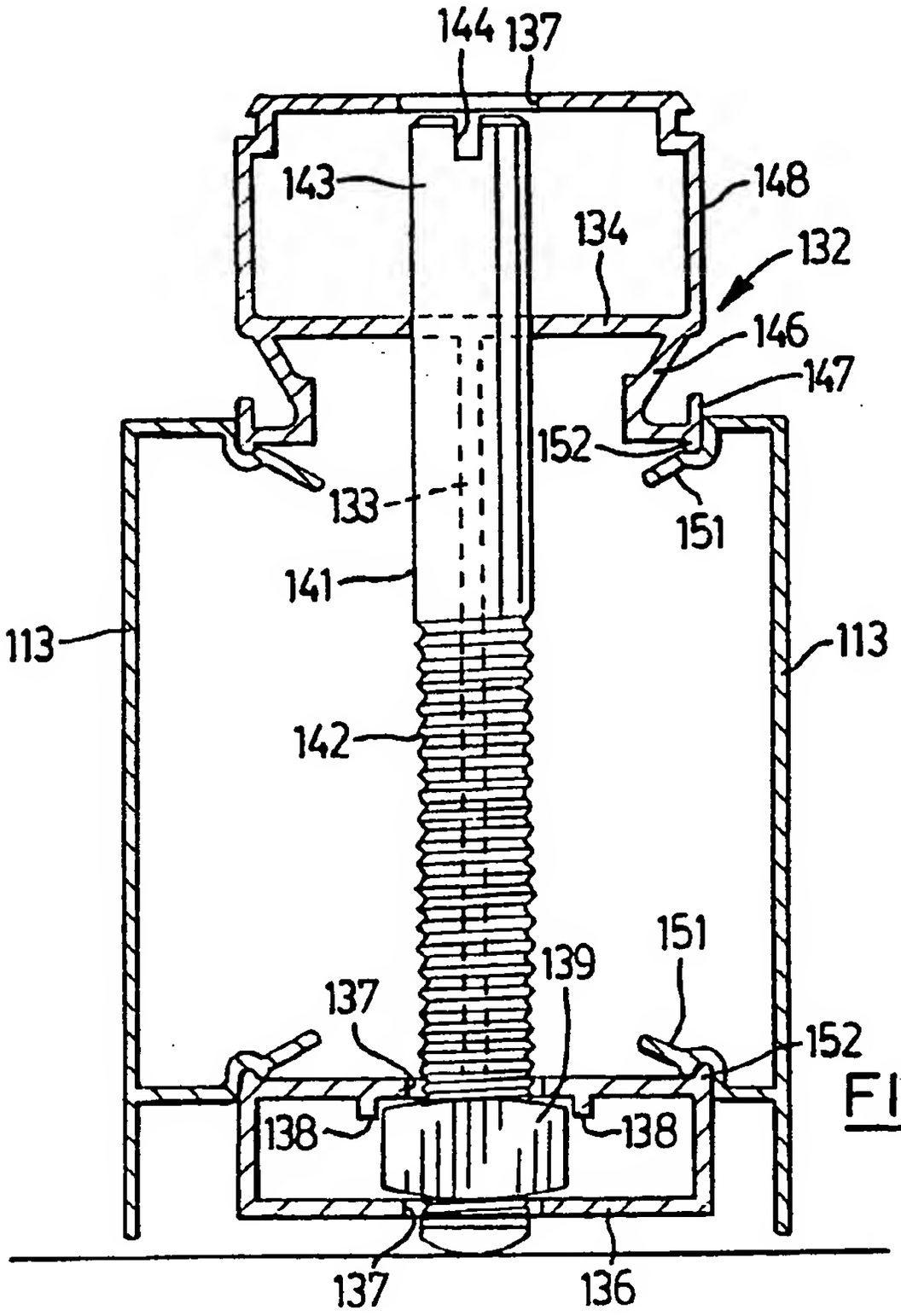

FIG. 6

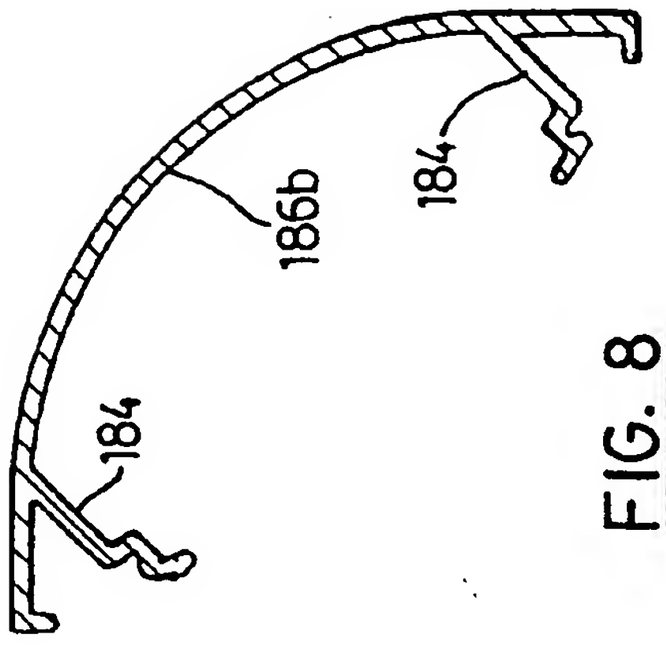
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FIG. 8

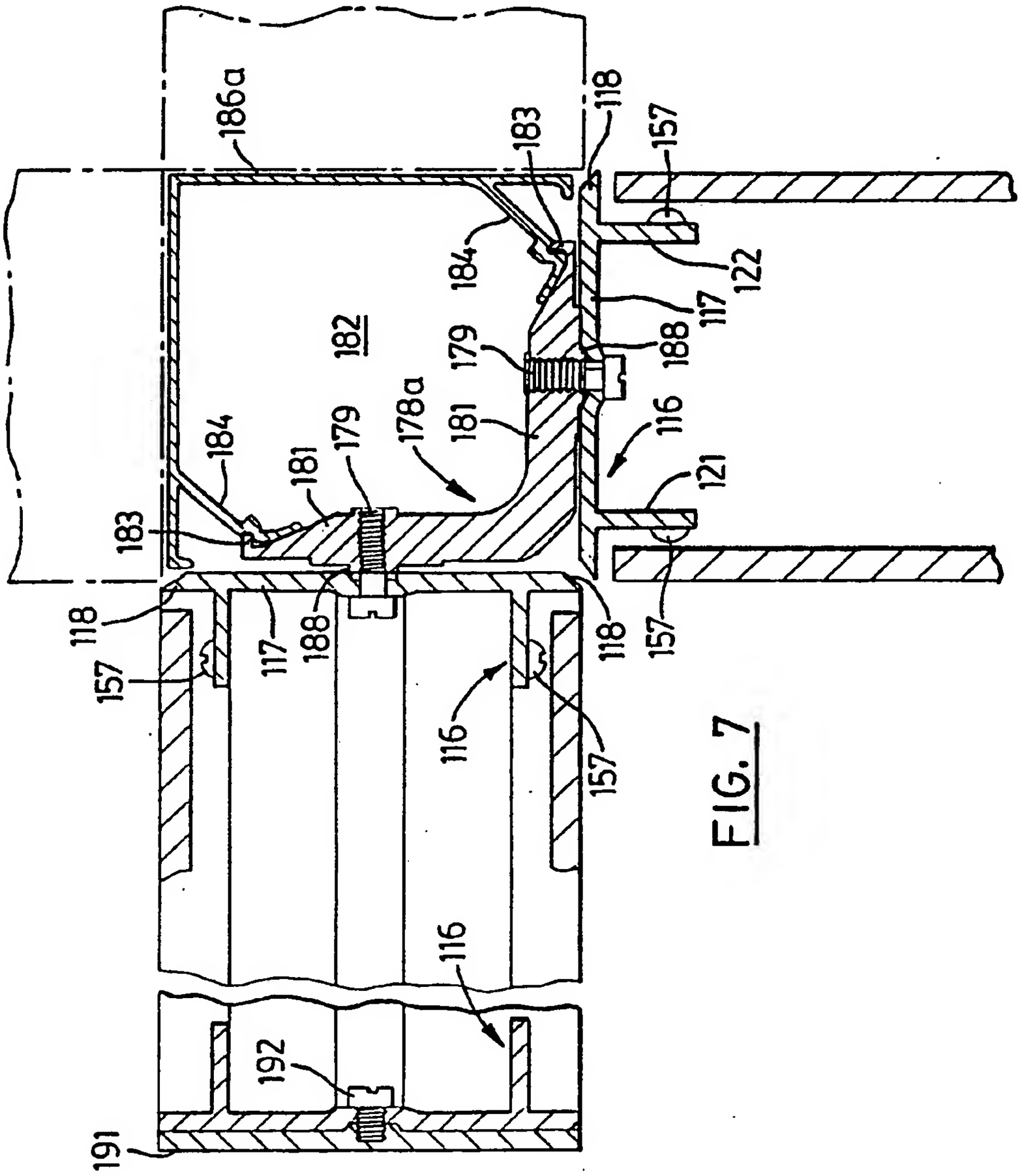
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FIG. 7

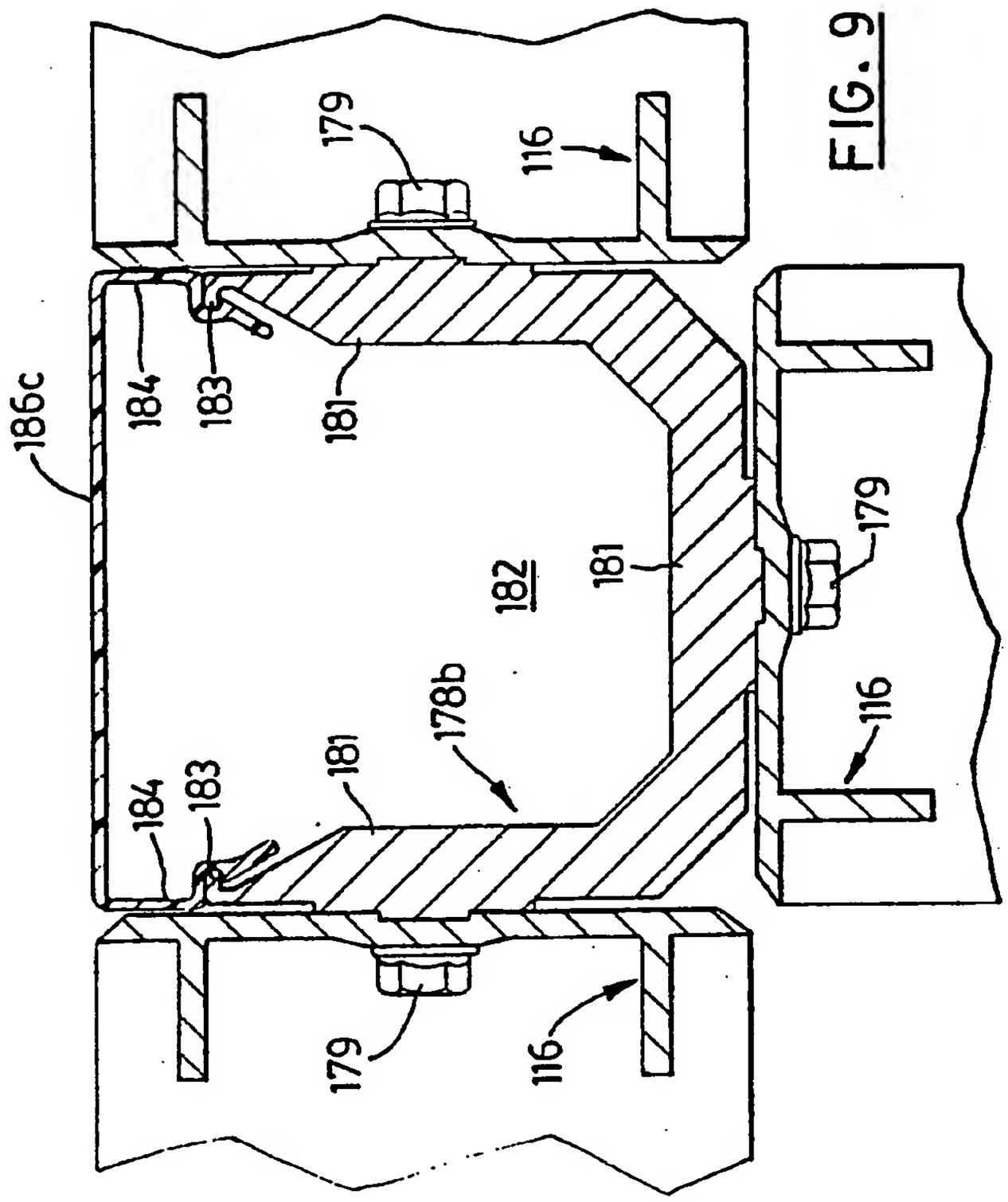

FIG. 9

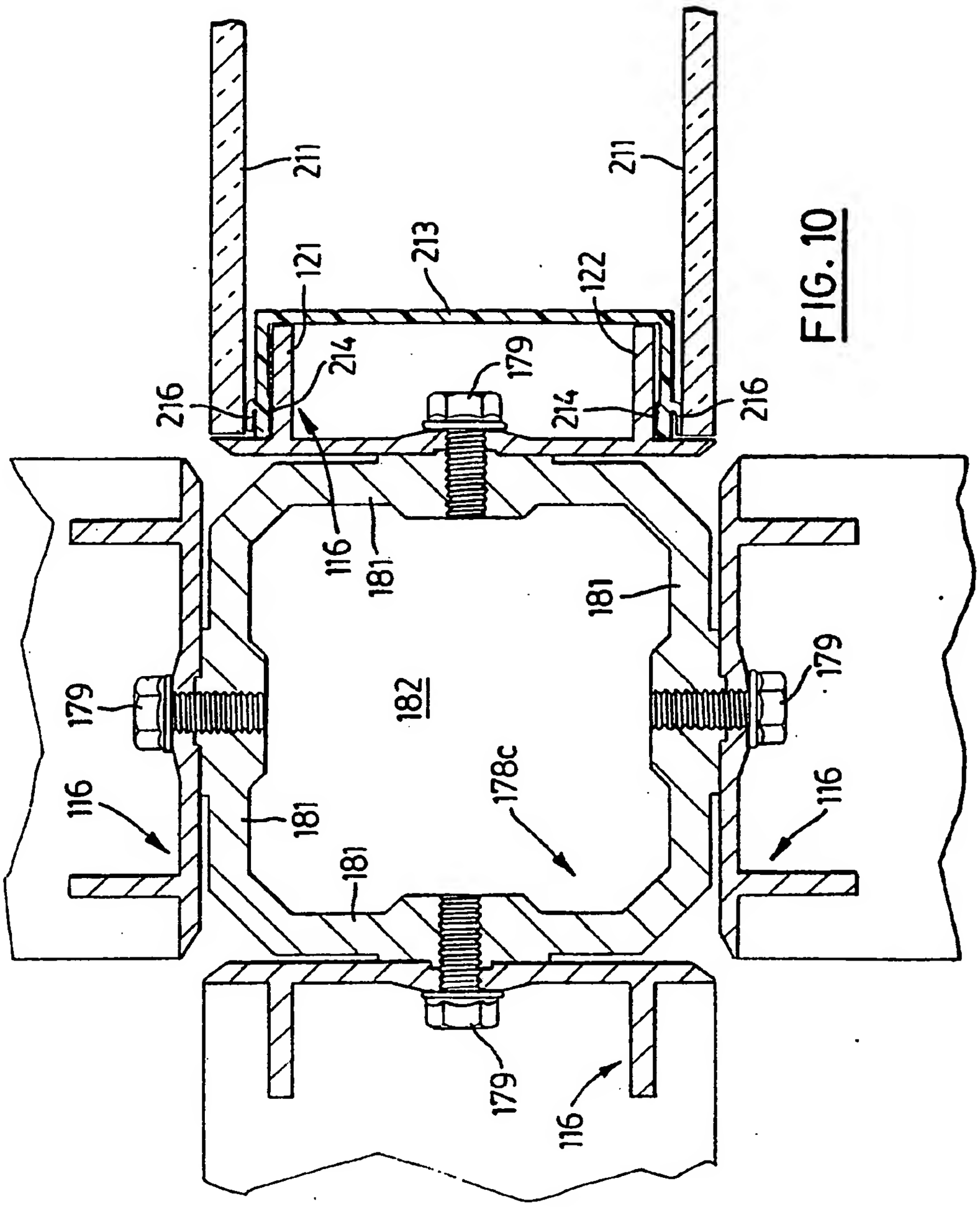
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FIG. 10

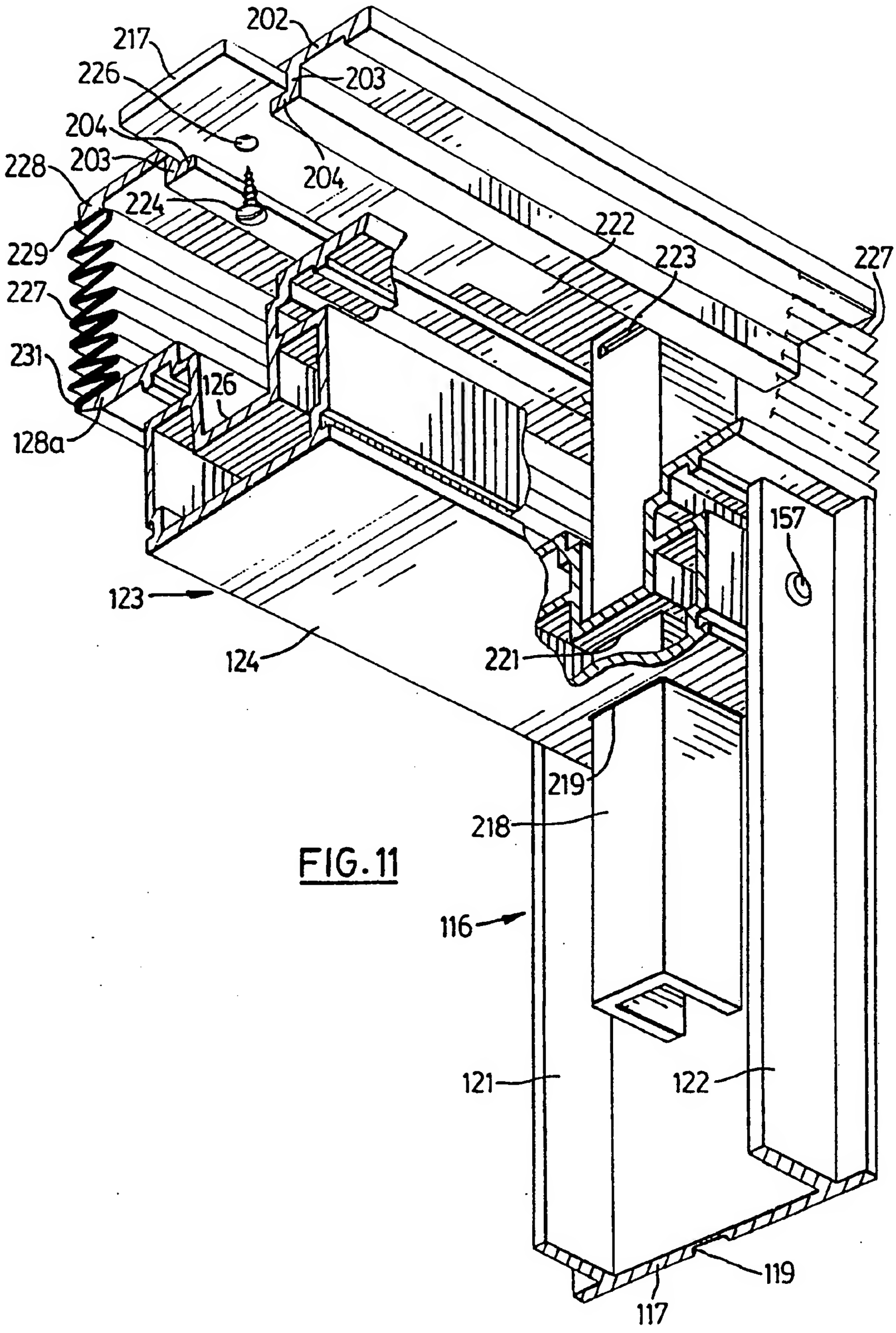
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FIG. 11

INTERNATIONAL SEARCH REPORT

International Application No PCT/CA 91/00058

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all)[6]

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 E04B2/74

II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
Int.Cl. 5	E04B

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched[8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category °	Citation of Document, [11] with indication, where appropriate, of the relevant passages [12]	Relevant to Claim No.[13]
X	US,A,4204375 (GOOD) 27 May 1980 see column 5, lines 15 - 26 see column 11, lines 10 - 20 see column 12, lines 1 - 37 see column 13, lines 34 - 50; figures 1, 6, 11-13	1
Y	---	2-5
Y	US,A,4689930 (MENCHETTI) 01 September 1987 see the whole document	2, 4, 5
A	---	1
Y	US,A,3782048 (CORMAN) 01 January 1974 see column 9, lines 22 - 57; figure 8	3
A	---	5
A	EP,A,0177639 (MILLER) 16 April 1986 see page 11, lines 3 - 14; figure 8	4, 5

° Special categories of cited documents : [10]

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
14 MAY 1991	12. 07. 91
International Searching Authority	**Signature of Authorized Officer**
EUROPEAN PATENT OFFICE	Natalia Weinberg

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO.

SA 44722

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information. 13/06/91

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US-A-4204375	27-05-80	US-A-	4100709	18-07-78
		CA-A-	1063313	02-10-79
		CA-A-	1068867	31-12-79
		FR-A,B	2366415	28-04-78
		GB-A-	1591572	24-06-81
		GB-A-	1591571	24-06-81
US-A-4689930	01-09-87	None		
US-A-3782048	01-01-74	None		
EP-A-0177639	16-04-86	US-A-	4571907	25-02-86
		CA-A-	1237867	14-06-88
		DE-A-	3474578	17-11-88
		US-E-	RE32890	21-03-89